SCPASS Science Grades 4-8
2015 Data Review

Scientific Inquiry

4-1 The student will demonstrate an understanding of scientific inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation.

- Data from the 2015 SCPASS shows that students are confusing which variable belongs on the x axis and which one belongs on the y axis.
- Students should practice labeling the x and y axes correctly.
- Data from the 2015 SCPASS shows that students are not using critical reading skills when reading charts, tables and graphs.
- Students should read and create charts, tables, and graphs frequently.

Organisms and Their Environment

4-2 Students will demonstrate an understanding of the characteristics and patterns of behavior that allow organisms to survive in their own distinct environments.

- Data from the 2015 SCPASS shows that students connect pollution only to humans.
- Instruction should emphasize that organisms other than humans can change their environment.

Scientific Inquiry

5-1 The student will demonstrate an understanding of scientific inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation.

- Data from the 2015 SCPASS shows that students confuse the independent and independent variables.
- Students should perform controlled experiments frequently.
- Data from the 2015 SCPASS shows that students are confusing which variable belongs on the x axis which one belongs on the y axis.
- Students should practice labeling the x and y axes correctly.

Ecosystems: Terrestrial and Aquatic

5-2 Students will demonstrate an understanding of relationships among biotic and abiotic factors within terrestrial and aquatic ecosystems.

- Data from the 2015 SCPASS shows that students confuse the vocabulary. (producers, consumers, decomposers, predator, prey, parasites and hosts)
- Emphasize the interactions among factors in ecosystems
- Emphasize how the factors within an ecosystem are dependent on one another.

Landforms and Oceans

5-3 The student will demonstrate an understanding of features, processes, and changes in Earth's land and oceans.

- Data from the 2015 SCPASS shows that students confuse the vocabulary. (weathering, erosion, and deposition)
- Emphasize how weathering, erosion, and deposition are constructive or destructive.

Forces and Motion

5-5 The student will demonstrate an understanding of the nature of force and motion.

- Data from the 2105 SCPASS shows that students do not understand the connection between motion, position, and direction.
- Emphasize the importance of summarizing the motion. ?

Scientific Inquiry

6-1 The student will demonstrate an understanding of technological design and scientific inquiry, including the process skills, mathematical thinking, controlled investigative design and analysis, and problem solving.

- Data from the 2105 SCPASS shows that students confuse uses of the tools. (Spring scale, beam balance, barometer, and sling psychrometer)
- Students should be using the tools in class when conducting investigations.

Structures, Processes, and Responses of Plants

6-2 The student will demonstrate an understanding of structures, processes, and responses of plants that allow them to survive and reproduce.

- Data from the 2016 SCPAS test shows that students confuse the different types of plant reproduction.(sexual and asexual)
- Emphasize several examples of each type.

Structures, Processes, and Responses in Animals

6-3 The student will demonstrate an understanding of structures, processes, and responses in animals that allow them to survive and reproduce.

- Data from the 2016 SCPASS test shows that students struggle with explaining the reasons for animal responses.(hibernation, migration, defense, and courtship) ?? seem to have lost something here.
  Emphasize the environment stimuli that cause the response.

Earth's Atmosphere and Weather

6-4 The student will demonstrate an understanding of the relationship between Earth's atmospheric properties and processes and its weather and climate.

- Data from the 2015 SCPASS test shows that students struggle with understanding the relationship between air movement and storms.
- Emphasize the connection between air movement and the formation of storms.
- Data from the 2105 SCPASS shows that students confuse which tool is used for each measurement. (wind speed and direction, air temperature, humidity, and air pressure)
- Students should be using the tools in class when collecting weather data.
- Data from the 2016 SCPASS shows that students struggle with the concept of convection.
- Explain this concept using several different strategies. – picture, video, colored heated water

Scientific Inquiry

7-1 The student will demonstrate an understanding of technological design and scientific inquiry, including the process skills, mathematical thinking, controlled investigative design and analysis, and problem solving.

- Data from the 2015 SCPASS test shows that students confuse inference and observation.
- Emphasize the difference using many examples.

Cells and Heredity

7-2 The student will demonstrate an understanding of the structures and function of cells, cellular respiration, and heredity.

- Data from the SCPASS test shows that students struggle understanding the difference between cellular processes. (respiration, photosynthesis, mitosis, and waste elimination)
- This is difficult new content for 7^{th} grade. Emphasize that these processes are essential for survival.
- Data from the 2015 SCPASS shows that students confuse the vocabulary. (genes, chromosomes, inherited traits, genotype, phenotype, dominate traits, and recessive traits)
- Emphasize the differences among the terms.

Ecology: The Biotic and Abiotic Environment

7-4 The student will demonstrate an understanding of how organisms interact with and respond to the biotic and abiotic components of their environment.

- Data from the 2015 SCPASS test shows that students struggle with connecting soil quality to specific ecosystems.
- Emphasize the importance of soil quality as a characteristic of an ecosystem.
- Data from the 2015 SCPASS shows that students confuse the vocabulary. (groundwater zones, surface-water drainage basins, and watersheds)

The Chemical Nature of Matter

7-5 The student will demonstrate an understanding of the classification and properties of matter and the changes that matter undergoes.

- Data from the 2015 SCPASS test shows that students do not understand balanced equations.
- Students should practice solving several different equations.
- Data from the 2015 SCPASS shows that students are confused about the density of solids, liquids and gasses.
- Illustrate differences in the densities in classroom demonstrations.

Scientific Inquiry

8-1 The student will demonstrate an understanding of technological design and scientific inquiry, including the process skills, mathematical thinking, controlled investigative design and analysis, and problem solving.

- Data form the 2015 SCPASS shows that students do not have an understanding of controlled investigative design and analysis.
- Provide opportunities for practice with classroom experiments

Earth's Biological History

8-2 The student will demonstrate an understanding of Earth's biological diversity over time.

- Data from the 2015 SCPASS shows that students struggle with using the geologic time scale.
- Provide opportunities for classroom practice using the geologic time scale.

Earth's Structure and Processes

8-3 The student will demonstrate an understanding of materials that determine the structure of the Earth and the processes that have altered this structure.

- Data from the 2015 SCPASS shows that students struggle with how igneous, metamorphic, and sedimentary rocks are interrelated.

Astronomy: Earth and Space Systems

8-4 The student will demonstrate an understanding of the characteristics, structure, and predictable motions of celestial bodies.

- Data from the 2015 SCPASS shows that students struggle with the relationship between mass and weight by using the concept of gravitational force.

Waves

8-6 The student will demonstrate an understanding of the properties and behaviors of waves.

- Data from the 2015 SCPASS shows that students struggle with refraction, reflection, transmission and absorption properties as they relate to tools. (mirror and prism)
- Provide practice using classroom demonstrations